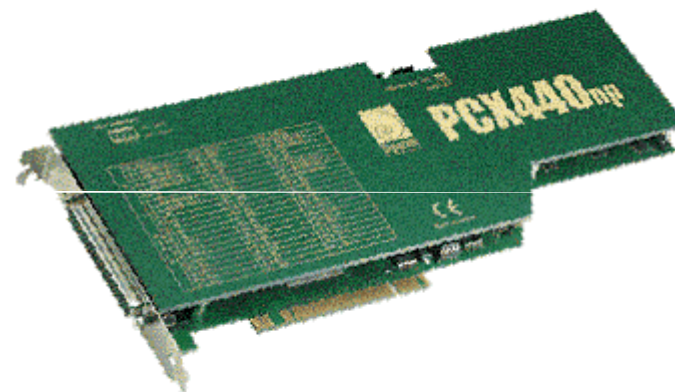


# PCX440np

Professional Digital Audio Card



User's manual



[www.digigram.com](http://www.digigram.com)

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## NOTES

### **INFORMATION FOR THE USER**

Important notice: please make sure that there is a good contact between the bracket and the PC frame.

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions contained in this data sheet, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- \* reorient or relocate the receiving antenna
- \* increase the separation between the equipment and the receiver
- \* connect the equipment into an outlet on a circuit different from that of the receiver
- \* consult the dealer or an experienced audio television technician.

**NOTE:** Connecting this device to peripheral devices that do not comply with CLASS B requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

**EMC:** The PCX440np card complies to the following specifications:

International:

CISPR22 class B

Europe:

NF EN 50081-1 (June 1992)

NF EN55022 (December 1994) class B

NF EN 50082-1 (June 1992)

IEC 1000-4-2 (1995): 4kV contact discharge, 8kV air discharge

IEC 1000-4-3 (1995): 3 V/m

IEC 1000-4-4 (1995): 0.5kV (I/O cables), 1kV (power supply)

#### **Additional Information**

To guarantee compliance, the cables used with the PCX440np must be shielded.

This product complies with the standards of the EMC 89/336/CEE specifications, modified in 1992.

## **OVERVIEW**

### **Features**

- Audio signal processing board for PCI bus built on the Motorola 56300 DSP family with two stereo channels or four mono channels for input and two stereo channels or four mono channels for output.
- Recording, processing and playback of professional-quality sound.
- Balanced analog audio inputs/outputs.
- Downloadable software driver allowing access to various types of processing.
- For multi-channel applications, the system can be extended to several intersynchronized PCX440np boards
- Wordclock synchronization input.
- SMPTE time code input.
- Optional AES/EBU inputs and outputs requiring no additional PC slot.

### **Audio specifications**

- Four mono analog inputs (20 bit A/D conversion)
- Four mono analog outputs (20 bit D/A conversion)
- Programmable sampling frequency: from 8 kHz to 48 kHz or external frequency
- Frequency response at 48 kHz (record + play): 20 Hz - 20 kHz  $\pm 0.2$  dB
- Signal/noise ratio (record + play): > 92 dB
- Distortion + noise at 1 kHz (record + play): < -89 dB
- Balanced line inputs: impedance >10 kOhms or 600 Ohms by switch
- Balanced line outputs
- Maximum input level: +26 dBu
- Maximum programmable output level: +22 dBu

### **Software Requirements**

- np driver 4.10 or higher

### **Hardware Requirements**

- one PCI slot.
- one level sensitive IRQ.
- 256 bytes of I/O address.

## **DEVELOPMENT TOOLS**

### **PCXtools np**

PCXtools is an Application Programming Interface (API), designed for Windows programmers who want to develop applications easily and efficiently.

### **PCX Designer Kit**

PCX Designer Kit provides a low-level interface for developers who require direct access to the software drivers. PCX Designer Kit includes the OEM version of Xtrack, one year of access to technical support and all the components of PCXtools.

### **Xtrack**

Xtrack, with its set of customization tools, can be rapidly integrated into any application based on PCX audio boards, thus making immediately available a complete set of highly-advanced editing functions.

## **EDITING**

### **Xtrack**

The Digigram digital audio workstation is a modular system. It operates on one or more PCX boards. The number of boards determines the number of input/outputs - the number of real-time tracks increases with the number of PCX boards. User-friendliness and powerful editing functions optimize productivity. Thanks to compression, Xtrack offers full CD quality and increased recording capacity.

### **Synchronization: PCXS & PCXC**

PCXS synchronizes, in slave or master mode, one or more PCX audio boards to an external source such as video or LTC. The board also features an RS422 port which supports the Sony protocol.

PCXC - A clock generator board that allows the application to control the sampling frequency

### **Post-production**

Incorporating PCXS, Xtrack is an audio editor for post-production. Xtrack provides frame accurate audio video synchronization.

## PROFESSIONAL DIGITAL AUDIO CARDS

Digigram boards work either in linear or compressed modes and provide a complete implementation of the ISO/MPEG audio standard (Layer I & II).

### Stereo boards

(two mono channels)

**PCX9** - The top-of-the-range board PCX9 offers two independent analog and digital inputs/outputs. For ISA & PCI bus, in record/playback or playback-only versions.

**PCX11+** - Equivalent processing power on two balanced analog mono input/outputs. Digital on option. ISA and PCI bus.

**PCX20** - Low cost card for playback only, offering two unbalanced analog mono outputs. ISA bus.

### Stereo boards for PC laptops

**PCXpocket/PCXpocketAD** - Full PCX audio power in the PC-Card format for laptops. Two balanced analog mono inputs and one stereo output (headphone or line)

### Multi-channel boards

**PCX80** - Eight balanced analog mono outputs offering audio quality equivalent to the PCX9. Two mono inputs and digital module on option. ISA bus.

**PCX440np** - Four analog inputs and four analog outputs offering the performance level of the new np range. PCI bus.

**PCX800np** - Eight analog balanced mono outputs offering the performance level of the new np range. PCI bus.

**PCX801np** - Four digital stereo outputs offering the performance level of the new np range. PCI bus.

**PCX820np** - Two analog mono inputs and eight analog balanced mono outputs offering the performance level of the new np range PCI bus.

**PCX821np** - One digital stereo input and four digital stereo outputs offering the performance level of the new np range. PCI bus.

### Processing functions

- Simultaneous real-time MPEG Audio compression/decompression (four channels), professional audio quality, reducing disk storage requirements in a programmable ratio of 1:4 to 1:48. At 128 kbps (1:6 compression at 48 kHz), 1 minute of mono sound (or 30 seconds of stereo sound) takes up only 960 Kbytes. PCX440np supports Layer I and II of the MPEG Audio standard (ISO 11172-3) and the low sampling frequencies of the MPEG2 Audio standard (ISO 13818-3).
- Simultaneous record/playback in PCM mode (no compression).
- Real-time mixing of several PCM or MPEG Audio files on one or several outputs: up to 12 stereo PCM tracks or 20 stereo MPEG Audio tracks (Layer II at 256 kbps) on two stereo channels.
- A large choice of software functions, such as time-stretching, pitch-shifting, format and frequency conversion.

### Physical format and connections

- PCIbus board, 1 slot, full-length format (265 mm x 99 mm)
- Connections: 62-pin SUB-D connector for analog or digital inputs/outputs and synchronization inputs connector for inter-board synchronization.

### Available on request

- PCXtools np

### Options

- AES/EBU SMPTE Time Code input (LTC) daughter board.
- AES/EBU or SPDIF digital input/output daughter board.
- PCX Designer Kit (Windows)
- Application software

### Power Consumption

+5 V: 0.9 A +12 V: 0.3 A -12 V: 0.25 A

### Operating Temperature Range

0°C to 70°C.

Notice: You can obtain updated information at <http://www.digigram.com>

## HARDWARE INSTALLATION

### Synchro switches

If one single PCX card is installed in the computer, the 2 switches must be set to ON.

### Inter board link cable

If several boards are installed in the computer, they may be used in synchronous mode. In this case, an inter-board cable (pin to pin cable) has to be connected to each board. The cable must be plugged into the synchro connector located at the top of the board.

The two switches near the connector must be set to ON on only one card in a set of cards linked by an inter-board cable.

### Interrupt request

The Interrupt Request number is set up at start-up by the PCI PnP BIOS.

### I/O address

Addresses are set up at start-up by the PCI PnP BIOS.

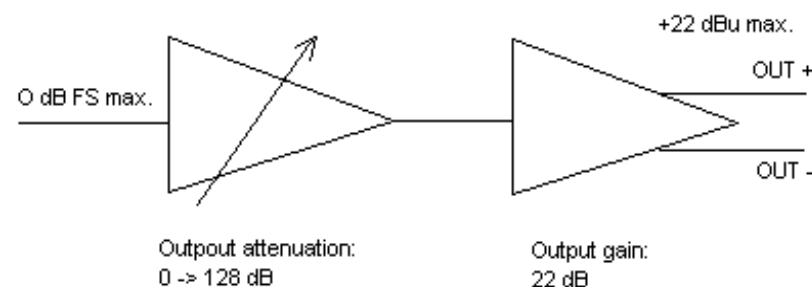
### Installing the SMPTE/MIDI option

When installing the SMPTE/MIDI option, connect the cable to the connector located at the bottom right end of the board. Make sure that the marked side of the cable is connected to pin1 located downwards.

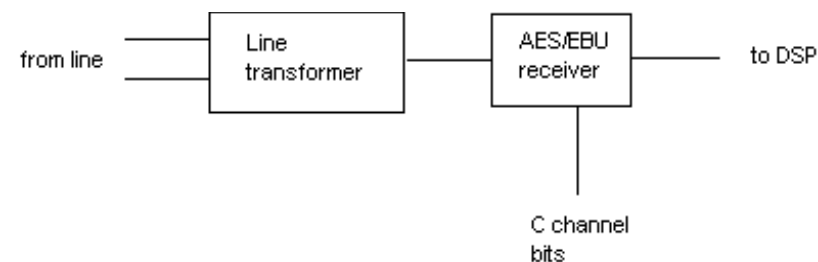
### Installing the AES/EBU option

Remove the four screws located on the welding side, remove the protective cover, install the AES/EBU daughterboard. You may now set the protective cover back in place and rescrew it.

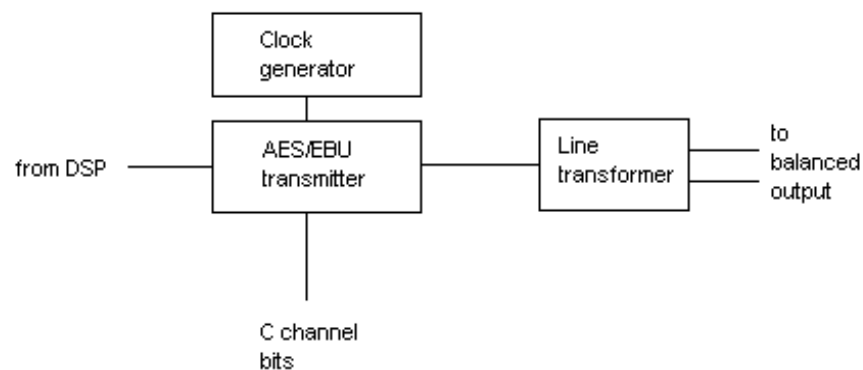
### Outputs (x4)



### Digital input (x2)

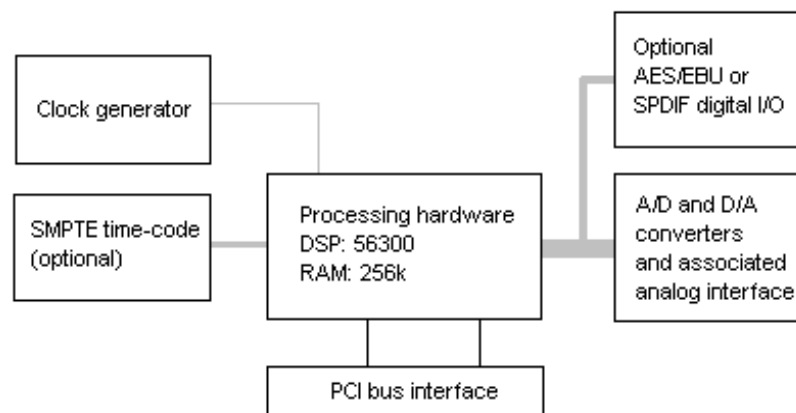


### Digital output (x2)



## BLOCK DIAGRAMS

### General block diagram

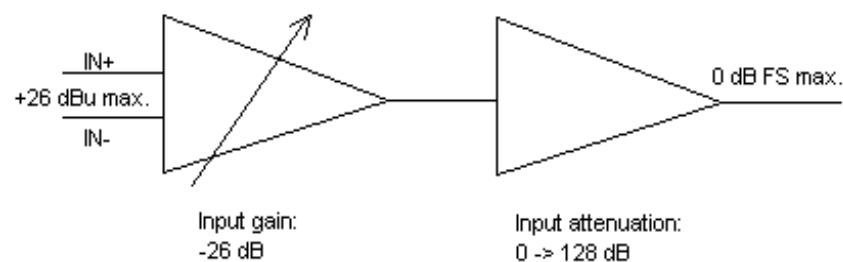


## SOFTWARE INSTALLATION

No driver floppy disk is delivered with the board. Please ask your supplier for an updated driver or download it from the Digigram Web site. Make sure that the driver has been approved by your supplier. Your supplier's application may request the use of a specific driver.

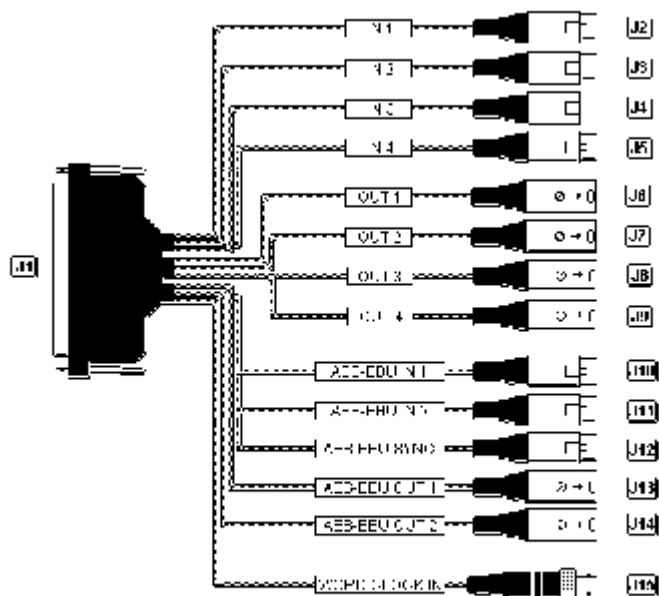
Please refer to the installation documentation which is delivered with the driver. It details the installation procedure to follow under Windows 95/98 and Windows NT.

### Inputs (x4)



## CABLE DIAGRAMS

The following diagrams provide information about the required cables. J1 provides connections for all basic and optional functions.



J10 to J14 are useful only if the AES/EBU optional daughterboard is installed.

